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For: TRANSVERSE ELECTRODISPLACIVE ACTUATOR ARRAY

- 1 1. A transverse electrodisplacive actuator array for controlling the optical
2 phasing of a reflective surface comprising:
3 a support structure;
4 a plurality of ferroic electrodisplacive actuator elements extending
5 from a proximate end at said support structure to a distal end; each actuator element
6 including at least one addressable electrode and one common electrode spaced from said
7 addressable electrode and extending along the direction of said proximate and distal ends
8 along the transverse d_{31} strain axis;
9 a reflective member having a reflective surface and a mounting surface
10 mounted on said actuator elements; and
11 a plurality of addressable contacts and at least one common contact for
12 applying voltage to said addressable and common electrodes to induce a transverse strain
13 in addressed actuator elements to effect an optical phase change in the reflective surface
14 at the addressed actuator elements.
- 1 2. The transverse electrodisplacive actuator array of claim 1 in which said
2 support structure and said actuator elements are integral.
- 1 3. The transverse electrodisplacive actuator array of claim 1 in which said
2 actuator elements are electrostrictive.

1 4. The transverse electrodisplacive actuator array of claim 1 in which said
2 actuator elements are magnetostrictive.

1 5. The transverse electrodisplacive actuator array of claim 1 in which said
2 actuator elements are piezoelectric.

1 6. The transverse electrodisplacive actuator array of claim 1 in which said
2 actuator elements are lead magnesium niobate.

1 7. The transverse electrodisplacive actuator array of claim 1 in which said
2 addressable contacts are on a surface of said support structure.

1 8. The transverse electrodisplacive actuator array of claim 7 in which said
2 addressable electrodes extend through said support structures to said addressable
3 contacts.

1 9. The transverse electrodisplacive actuator array of claim 1 in which said
2 common contact is on a surface of said support structure.

1 10. The transverse electrodisplacive actuator array of claim 9 in which said
2 common electrodes extend through said support structure to said common contact on said
3 support structure.

1 11. The transverse electrodisplacive actuator array of claim 1 in which said
2 common contact is on the said reflective member.

1 12. The transverse electrodisplacive actuator array of claim 11 in which said
2 common electrodes extend through said actuator elements to said common contact on
3 said reflective member.

1 13. The transverse electrodisplacive actuator array of claim 1 in which said
2 actuator elements are a ferroelectric material.

1 14. The transverse electrodisplacive actuator array of claim 1 in which said
2 actuator elements are a ferromagnetic material.

1 15. The transverse electrodisplacive actuator array of claim 1 in which said
2 actuator elements are a lead zirconate titanate.

1 16. The transverse electrodisplacive actuator array of claim 1 in which said
2 actuator elements are a ferroic ceramic.

1 17. The transverse electrodisplacive actuator array of claim 1 in which said
2 actuator elements are single crystal materials.

1 18. The transverse electrodisplacive actuator array of claim 1 in which said

2 reflective surface is a continuous surface.